REBUTTAL TESTIMONY OF

HUBERT C. YOUNG, III

ON BEHALF OF

SOUTH CAROLINA ELECTRIC & GAS COMPANY

DOCKET NO. 2011-325-E

Q. PLEASE STATE YOUR NAME AND POSITION FOR THE RECORD.

A. My name is Hubert C. Young, III. I am the Manager of Transmission Planning for South Carolina Electric & Gas Company ("SCE&G" or "Company").

Q. HAVE YOU PREVIOUSLY SUBMITTED DIRECT TESTIMONY IN THIS PROCEEDING?

A. I have.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of my rebuttal testimony is to respond to certain points made by Mayor Keith Bailey and Town Administrator John Perry, the witnesses for the Town of Blythewood ("Town"), regarding the possibility of undergrounding or rerouting a section of the proposed Winnsboro-Blythewood Segment of the VCS1-Killian 230 kilovolt ("kV") Line. My rebuttal testimony also responds to the testimony of Councilwoman Val Hutchinson and Dr. James Atkins, the witnesses for Richland County ("County"), regarding the County's request that the Commission deny SCE&G a Certificate of Environmental Compatibility and Public Convenience and Necessity ("Certificate") for the VCS1-Killian 230 kV Line because the selected

route does not conform to Richland County's Land Development Code or to specific Ordinances approved by the County.

Q. HOW DO YOU RESPOND TO MAYOR BAILEY'S SUGGESTION THAT THE COMPANY PLACE UNDERGROUND THE SECTION OF THE PROPOSED WINNSBORO-BLYTHEWOOD SEGMENT OF THE VCS1-KILLIAN 230 kV LINE THAT RUNS PAST THE INTERSECTION OF BLYTHEWOOD ROAD AND NORTHBOUND I-77 AT EXIT 27?

A. From the Company's perspective, SCE&G is responsible for both least-cost planning and system reliability. Placing a section of the Winnsboro-Blythewood Segment of the VCS1-Killian 230 kV Line underground would assist neither objective as it would increase our customers' electric bill without improving system reliability for SCE&G's customers.

In its testimony, the Town provides no guidance on how long of a section of the Winnsboro-Blythewood Segment it desires for SCE&G to place underground. For discussion purposes, to alleviate the Town's concerns, SCE&G assumes that undergrounding 0.4 miles of the Winnsboro-Blythewood Segment from a point north of the intersection of Blythewood Road and northbound I-77 at Exit 27 to a point south of the intersection would be sufficient. SCE&G estimates undergrounding a 0.4-mile section of the Winnsboro-Blythewood Segment would cost approximately $26 million, which is approximately $25 million more than the cost of constructing the same 0.4-mile section of the Winnsboro-Blythewood Segment using an overhead transmission circuit. SCE&G generally estimates that

the cost to place a single 115 kV transmission cable underground is about 8 to 10 times the cost to build an overhead transmission line. In this case, the underground facilities would be 230 kV and would be significantly more expensive than the 8 to 10 times ratio.

The following discussion may help put the estimated $26 million dollar cost to underground the 0.4-mile section of the Winnsboro-Blythewood Segment in context. In his testimony, Town Administrator Perry testifies that the Town has spent $74,800 to assist the South Carolina Department of Transportation ("SCDOT") with $374,000 worth of landscape enhancement projects for the Exit 27 interchange of Interstate 77. Based upon my reading of the Financial Participation Agreement & Contract between the SCDOT and the Town, as displayed in Perry Exhibit 2, the SCDOT is responsible for the remaining $299,200 of the $374,000 in landscape enhancements. Notably, on September 14, 2011, the SCDOT filed a letter with the Public Service Commission of South Carolina in this docket, stating that "it does not appear that the proposed [transmission] projects will have any adverse impacts on current SCDOT facilities or projects."

Town Administrator Perry also testifies that the Town has already spent approximately $100,000 purchasing new poles and fixtures in connection with an update to the bridge over Interstate 77. The Town has applied for a grant of $145,000 in connection with this update project which is expected to cost a total of $259,666. Although nothing in either the testimony or the exhibits filed by the

Town indicates that the Town's application for the grant has been approved, SCE&G has no reason to believe that the grant will not be awarded. Thus, in furtherance of its out-of-pocket $189,466 share ((374,000-299,200) + ($259,666-145,000) = $189,466) of the landscape enhancements and bridge update, the Town is asking SCE&G to spend an estimated additional $25 million to underground an approximately 0.4-mile section of the Winnsboro-Blythewood Segment.

Ultimately, of course, SCE&G's customers would bear the additional cost burden that the Town is requesting SCE&G to incur with no benefit to the system. SCE&G fails to see how undergrounding this short section of the Winnsboro-Blythewood Segment is an effective use of its customers' money, particularly given that the existing 115 kV line will still run past the intersection of Blythewood Road and northbound I-77 at Exit 27.

Q. WHY DOES UNDERGROUNDING THE SECTION OF THE WINNSBORO-BLYTHEWOOD SEGMENT COST SO MUCH MORE THAN CONSTRUCTING AN OVERHEAD LINE?

A. Underground cables are more technologically complex and sensitive to operate than overhead transmission lines. They are also much more difficult to troubleshoot and repair than overhead transmission lines. In this case, the most technically feasible approach for undergrounding a section of the Winnsboro-Blythewood Segment would require SCE&G to use underground cables that individually have approximately half the ampacity (electric power carrying capability) of the overhead transmission line that they would replace. While there

are underground cable systems that can carry as many amps per cable as the overhead transmission line proposed here, these systems are prohibitively expensive, and may require installation and on-going operation of a pumped-oil cooling system to dissipate the heat that they generate in the cable conduit underground. For that reason, it is more cost effective to use underground cables each of which has approximately half of the ampacity of the overhead transmission line they would replace.

Q. HOW WOULD THE NEED FOR REDUNDANCY AFFECT THE COST OF UNDERGROUDING?

A. As mentioned above, underground cables are much more difficult to troubleshoot and repair than overhead transmission lines. In addition, the time it takes to repair a failed underground cable system can be much greater than the time it takes to repair a failure on an overhead transmission line. In most cases, the nature and location of a failure on an overhead line can be identified quickly through a visual inspection. Repairs to overhead lines can typically be accomplished in less than 8-10 hours using bucket trucks and readily available materials. Underground cable cannot be visually inspected. To troubleshoot, remove, and replace a failed underground cable can be a major construction project. In addition, obtaining the materials necessary to effect an underground cable system repair can add months to the repair time. Underground cable such as the cable that would be most suitable for Blythewood is oil/paper insulated and must be kept under a blanket of pressurized gas whether in-service or in storage at

all times. For that reason, spare cable cannot be easily stored but must be ordered when needed. The lead time for obtaining new cable is as long as 18 months.

For all of these reasons, replacing a failed underground cable can take up to two (2) years in some cases. Therefore, underground cables must be designed and built with added redundancy to support the needs of the system until repairs are completed. In this case, redundancy would be especially critical because the proposed transmission line is a major 230 kV transmission line connecting one of SCE&G's largest generation sites, V.C. Summer Station, to one of its largest load centers, Northeast Columbia. The need for redundancy increases the cost.

Q. HOW WOULD THE NEED FOR REDUNDANCY AFFECT UNDERGOUNDING HERE?

A. In this case, reliability would require SCE&G to install four sets of underground cables for the 230 kV transmission line being replaced. Two cables would be needed to meet the basic ampacity requirement. A third would provide immediate and primary redundancy should either of the first two cables fail. A fourth would provide ongoing redundancy during any extended period when that failed cable was being replaced.

Q. WHY IS THE FOURTH CABLE NEEDED?

A. As mentioned earlier, the VCS1–Killian 230 kV Line will be a major and critical transmission facility. If a portion of this line is installed underground and one of the underground cables fails, we must assume that it could take a year or more to put it back into service. We could not operate the system for that

extended period of time without redundancy in case one of the remaining cables failed. For that reason, assuming one cable failed, we would need the fourth cable to ensure that there was redundancy for the system in case there was another failure during the repair period.

Q. ARE THERE ANY OTHER REASONS WHY UNDERGROUNDING THE SECTION OF THE 230 kV WINNSBORO-BLYTHEWOOD SEGMENT IS NOT PREFERABLE?

A. Yes. In addition to the higher design and installation costs, the underground lines also have higher replacement costs than do overhead lines. Moreover, once the lines are placed underground, there is little to no flexibility to upgrade the facilities to respond to changes on the system.

For these reasons and the others mentioned above, transmission cables are only placed underground when there is no other viable overhead corridor such as near airports or in heavily congested urban areas where there are tall buildings to navigate around and underground tunnels usually already exist for placing public facilities. Such is plainly not the case here, and spending additional money to bury this short section of the Winnsboro-Blythewood Segment of the VCS1-Killian 230 kV Line is not in the best interests of SCE&G and its customers.

Q. WHAT SORT OF PRECEDENT MIGHT BE SET HERE IF THE COMMISSION WERE TO ORDER SCE&G TO UNDERGROUND THIS SHORT SECTION OF THE WINNSBORO-BLYTHEWOOD SEGMENT OF THE VCS1-KILLIAN 230 kV LINE?

A. Currently, SCE&G does not have any underground 230 kV facilities. A 230 kV underground project would create a new and expensive design standard for the Company. SCE&G estimates that the cost of the simplest 115 kV underground system to be approximately 8 to 10 times the cost of overhead transmission line. The cost of the four 230 kV cable systems that would be necessary to underground the 0.4-mile section of the Winnsboro-Blythewood Segment is approximately $26 million, or approximately 26 times the cost of a 0.4-mile section of overhead transmission line. If the Commission were to order SCE&G to underground this section of line in Blythewood, we would expect that communities and residents throughout our service area would demand similar concessions. Undergrounding transmission is extremely expensive. Customers bear these costs.

Q. HOW DO YOU RESPOND TO THE SUGGESTION OF MAYOR BAILEY AND TOWN ADMINISTRATOR PERRY THAT THE COMPANY REROUTE THE PROPOSED WINNSBORO-BLYTHEWOOD SEGMENT OF THE VCS1-KILLIAN 230 kV LINE SO THAT IT CROSSES OVER INTERSTATE 77 NORTH OF EXIT 27, PASSES OVER BLYTHEWOOD ROAD AT SOUTHBOUND EXIT 27, AND THEN CROSSES BACK OVER I-77 AT SOME POINT SOUTH OF EXIT 27?

A. In his rebuttal testimony, Company Witness Byrne explains in great detail why a potential reroute of the proposed Winnsboro-Blythewood Segment endangers the issuance of the Combined Operating License for the new nuclear units at V.C. Summer Station, and Company Witness Hollifield explains why the rerouting would be a mistake from a scenic quality perspective and may be opposed by landowners and homeowners from whom the Company would need to acquire new right-of-way for the rerouting.

In addition to those significant concerns, I would also note that the Company estimates that such a rerouting would cost at least an additional $2 million, possibly more. Like the additional cost associated with undergrounding the line, this significant additional cost burden to reroute the line would ultimately be borne by SCE&G's customers. SCE&G fails to see how rerouting this short section of the Winnsboro-Blythewood Segment is an effective use of its customers' money, particularly given that the existing 115 kV line will remain in its current location within the existing SCE&G right-of-way and will still run past

the intersection of Blythewood Road and northbound I-77 at Exit 27 even if the 230 kV Winnsboro-Blythewood Segment is rerouted.

Q. HOW DO YOU RESPOND TO THE REQUEST OF COUNCILWOMAN HUTCHINSON AND DR. ATKINS THAT THE COMMISSION DENY THE COMPANY'S APPLICATION FOR A CERTIFICATE FOR THE VCS1-KILLIAN 230 kV LINE BECAUSE THE SELECTED ROUTE FOR THE VCS1-KILLIAN 230 kV LINE DOES NOT CONFORM TO THE COUNTY'S LAND DEVELOPMENT CODE AND SPECIFIC ORDINANCES APPROVED BY THE COUNTY?

A. First, as I stated on pages 30-31 of my pre-filed direct testimony, SCE&G currently operates all of its existing transmission facilities within the applicable state and local laws and regulations, and we are committed to operating all lines for which a Certificate is requested in this docket, including the VCS1-Killian 230 kV Line, within applicable state and local laws and regulations as well.

Neither Councilwoman Hutchinson nor Dr. Atkins identify any specific County ordinance or any specific provision of the Richland County Land Development Code with which SCE&G fails to comply. In fact, Councilwoman Hutchinson herself admits that transmission lines such as the VCS1-Killian 230 kV Line are allowed in all zoning districts under the Richland County Land Development Code.

Even if the County were to demonstrate that SCE&G was not in compliance with a specific County ordinance or provision of the Richland County Land Development Code, the Commission—as the exclusive transmission line siting authority in the State of South Carolina—has the statutory authority—pursuant to S.C. Code Ann. § 58-33-160 (1976)—to refuse to apply that ordinance or Land Development Code provision if the Commission finds that the ordinance or Land Development Code provision is unreasonably restrictive in view of, among other things, costs or economics or the needs of consumers regardless of their location. If necessary, an exercise of this statutory authority would be entirely appropriate here if the County were to identify a specific ordinance or Land Development Code provision and the Commission were to determine that SCE&G had not provided reasonable assurance that the proposed VCS1-Killian 230 kV Line would conform to the specified ordinance or provision. Put simply, (i) the need for the VCS1-Killian 230 kV Line, which the County admits in its direct testimony (see Direct Testimony of Val Hutchinson, page 4, lines 1-2 ("We do not take exception to the need for the proposed line . . . .")); (ii) the needs of South Carolinians for a safe, reliable supply of electricity; (iii) the benefits of the new nuclear project to the State's—and Richland County's—economic development; and (iv) the potential for significant additional cost burden to be borne by SCE&G's customers in the event that the Commission denies SCE&G's request for a Certificate for the VCS1-Killian 230 kV Line far outweighs any of the County's concerns.

Q. WHAT WOULD THE IMPACT TO CUSTOMERS BE IF SCE&G IS NOT GRANTED A CERTIFICATE FOR THE VCS1-KILLIAN 230 kV LINE?

A. The County is requesting that the Commission deny SCE&G's request for a Certificate for the VCS1-Killian 230 kV Line. The consequence of granting the County's request would have a significant and substantial cost impact on the entire V.C. Summer Units 2 and 3 construction project and would be tantamount to a finding that the new nuclear units themselves are not needed. Of course, the Commission has already determined that the new units are in fact needed to provide safe, reliable power to SCE&G's customers, including our customers who reside in Richland County.

Q. IN SUMMARY, WHAT ARE YOU ASKING THE COMMISSION TO DO?

A. SCE&G respectfully asks that the Commission issue a Certificate of Environmental Compatibility and Public Convenience and Necessity for the construction and operation of VCS1-Killian 230 kV Line, the VCS2-Lake Murray 230 kV Line No. 2, and the Segment of the VCS2-St. George 230 kV Line No. 1. Regarding the Blythewood-Killian Segment of the VCS1-Killian 230 kV Line, SCE&G specifically requests that the Commission grant a Certificate of Environmental Compatibility and Public Convenience and Necessity for both the selected route along new right-of-way and the alternate route within existing right-of-way.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes.